Appendix E: Pinnacles Case Study NIST BLCC Comparative Economic Analysis

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* N I S T B L C C: COMPARATIVE ECONOMIC ANALYSIS (ver. 4.4-97) *

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Project: Pinnacles Power Supply
Base Case: base case:
Alternative: pvgen

Principal Study Parameters

Analysis Type:	Federal Analysis—Energy Conservation Projects
Study Period:	20 Years (June 1998 through May 2018)
Discount Rate:	4.1% Real (exclusive of general inflation)
Basecase LCC File:	PINGEN1.LCC
Alternative LCC File:	PVGEN.LCC

Comparison of Present-Value (P.V.) Costs

	Base Case: base case:	Alternative: pvgen	Savings from Alt.
Initial Investment item(s):			
Capital Requirements as of Service Date	$50,000	$150,000	-$100,000
Subtotal	$50,000	$150,000	-$100,000
Future Cost Items:			
Annual and Nonannual Recurring Costs	$54,977	$10,397	$44,579
Energy-related Costs	$166,198	$22,230	$143,968
Capital Replacements	$101,720	$43,556	$58,164
Subtotal	$322,895	$76,184	$246,711
Total P.V. of Life-Cycle Cost	$372,895	$226,184	$146,711

Net Savings from Alternative ‘pvgen’ compared to Base Case ‘base case:’

Net Savings = P.V. of Noninvestment Savings	$188,547
- Increased Total Investment	$41,836
Net Savings:	$146,711

Note: the Savings-to-Investment Ratio (SIR) and Adjusted Internal Rate of Return (AIRR) computations include differential initial costs, capital replacement costs, and residual value (if any) as investment costs, per NIST Handbook 135 (Federal and MILCON analyses only).

SIR for Alternative ‘pvgen’ compared to Base Case ‘base case:’

$$SIR = \frac{\text{P.V. of Noninvestment Savings}}{\text{Increased Total Investment}} = 4.51$$

AIRR for Alternative PV/Hybrid compared to
Base Case ‘base case:’(Reinvestment Rate = 4.10%; Study Period = 20 years)

AIRR = 12.24%

Estimated Years to Payback: Simple Payback occurs in year 5; Simple Payback negated by cost of battery replacement in year 8; Simple Payback occurs in year 9; Discounted Payback occurs in year 6; Discounted Payback negated in year 8; Discounted Payback occurs in year 10.

ENERGY SAVINGS SUMMARY

Energy Type	Units	Average Annual Consumption — Basecase	Alternative	Savings	Life-Cycle Savings
Distil. Oil	Gallon	12,000.0	0.0	12,000.0	240,000.0
Other	Gallon	0.0	1,265.0	-1,265.0	-25,300.0